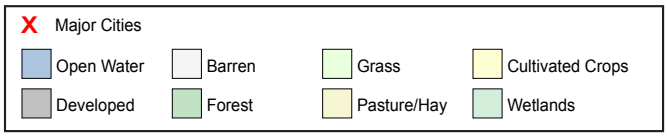
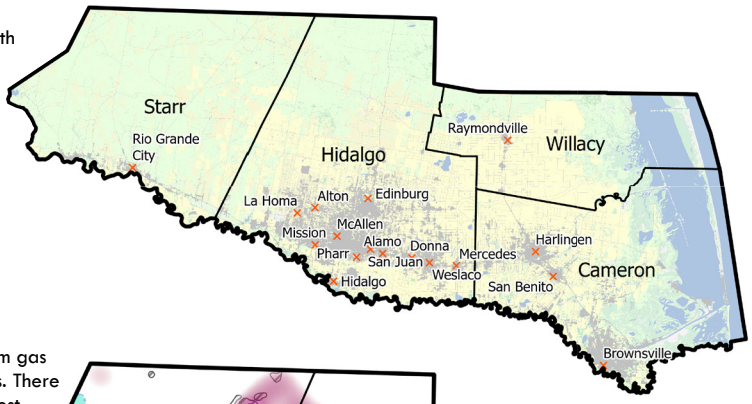
U.S. DEPARTMENT OF ENERGY | Office of Economic Impact and Diversity

The Rio Grande Valley Overview: Land Use, Energy Production and Health Risks

Land Cover[1]

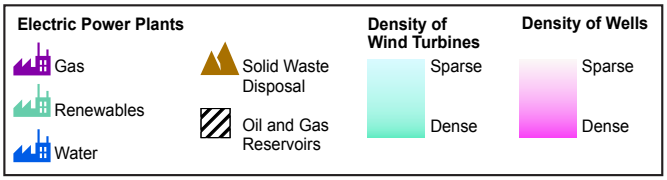
The land cover of a region can indicate the types of economic activities and roles of industry, agriculture, transportation and development in the region. Some studies[2] have suggested health impacts in this area associated with all these activities: burning for agriculture, industrial pollution, transport across the boarder. According to the Energy Information Administration, in Texas the largest consumer of energy is the industrial sector.

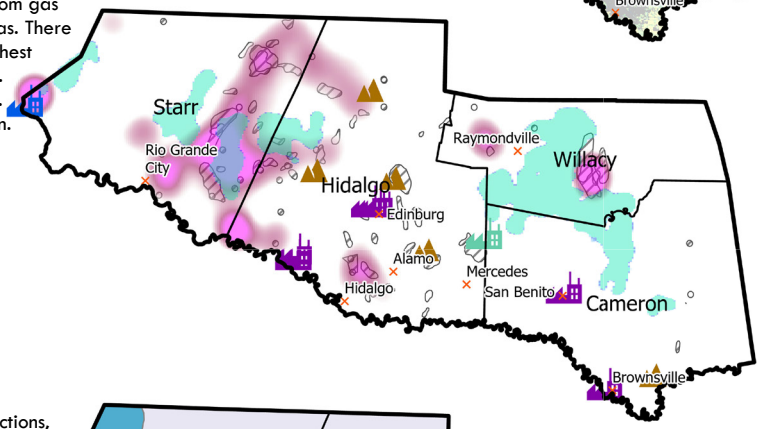




Energy Overview[3, 4, 5]

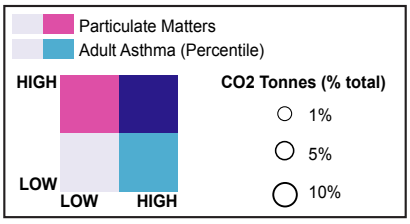
The energy system in the area reflects a fossil fuel dependence with electricity production from gas resulting in carbon emissions. In the U.S. Texas is the top producer of crude oil and natural gas. There is a high concentration of wells near oil and gas reservoirs. Texas is also the nation's 2nd highest exporter of Liquid Natural Gas (LNG). Renewables, particularly wind, are making headway. Investment in carbon-free technologies could have a beneficial impact on the regions' health. The Department of Energy has several open opportunities to accelerate the energy transition.

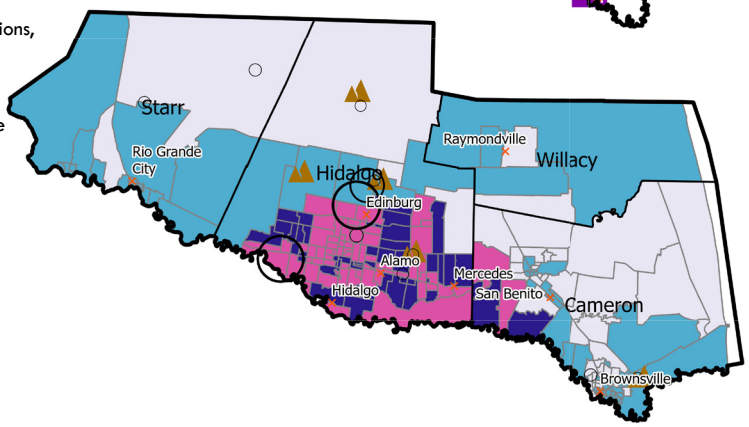




PM2.5 and Asthma[6, 7, 8]

Exposure to high levels of air pollution can cause adverse health effects like respiratory infections, heart disease and lung cancer. According to the World Health Organization, the most health-harmful pollutants are fine particulate matters (PM2.5) that penetrate deep into the lungs. This image shows the prevalence in the region of PM2.5 and of asthma among adults on low to high scales. Notice large overlaps between these, primarily in places that have large emissions.





Data Sources:

[1] National Land Cover Database: https://www.usgs.gov/centers/eros/science/national-land-cover-database

[2] Pinakana, S.D.; Mendez, E.; Ibrahim, I.; Majumder, M.S.; Raysoni, A.U. Air Pollution in South Texas: A Short Communication of Health Risks and Implications. Air 2023, 1, 94–103. https://doi.org/10.3390/air1020008

[3] US Wind Turbines Database: https://eerscmap.usgs.gov/uswtdb/

[4] FracTracker Oil and Gas Infrastructure Data - https://www.fractracker.org/map/

[5] EPA Facility Registry Service (FRS) - GHG data and facility data https://hifld-geoplatform.opendata.arcgis.com/datasets/geoplatform::-environmental-protection-agency-epa-facility-registry-service-frs-power-plants/explore

[6] ClimateTrace Emissions https://climatetrace.org/

[7] DOE DAC Reporter https://energyjustice.egs.anl.gov/, PM2.5 from EPA EJScreen PM2.5 Index

[8] Climate Economic Justice Screening Tool - https://screeningtool.geoplatform.gov/en/downloads#3/33.47/-97.5 - Asthma Indicator